

indicated arrow. By separation of the two wall elements R1 and R2 a gap is formed at the separation site into which a separation element or also a transport element can be inserted.

A vibrating element L is also arranged in the region of rear wall R in order to align the individual components of the stack or arrange them by controllable vibrations.

An reloading apparatus is depicted in Figure 9 in the initial position A viewed from the front schematically. It is readily apparent that balancing elements 12 are arranged between the clamping jaws K and the stack S and the fastening cover D and stack S and should stabilize the stack from at least three sides after the clamping jaws and the fastening cover have been moved onto the stack.

Claims

1. Method for rearrangement of stacks and for changing the transport elements under stacked products according to the following process steps:

a) Fastening of a product stack (S) resting in an initial position (A) on a first transport element (T1) between the first transport element on the lower end of the stack (S) and fastening cover (D) provided on the opposite upper end of the stack (S), wherein the first transport element (T1) lies on a foot element (F),

b) Clamping of the stack between at least two additional opposite side surfaces by at least two clamping jaws (K),

c) Pivoting and/or displacement of the foot element (F) away from the bottom of the stack (S) so that the first transport element is released,

d) Replacement of the first transport element (T1) with a second transport element (T2),

e) Reversal of the movements of the foot element (F) mentioned in step c) so that the second transport element (T2) can be placed on the lower end of stack (S),

f) Loosening of the fastenings and clampings according to step a) and b).

2. Method according to Claim 1, characterized by the fact that

– between step b) and c) for unloading of the first transport element (T1) and foot element (F), pivoting of the entire stack (S) occurs around an essentially horizontal axis (20) into a tilted position (B) and

– a pivot movement opposite this occurs between step e) and f).

3. Method according to Claim 2, characterized by the fact that the stack is arranged essentially horizontally in the tilted position (B).

4. Method according to Claim 3, characterized by the fact that the stack in the tilted position (B) is divided into two stacks by displacement of the rear wall (R) divisible into at least two wall elements (R1, R2) in order to insert a separation or transport element in between or remove one.

5. Method according to Claim 4, characterized by the fact that the clamping jaws are released for the stack division process.

6. Method according to one of the previous claims, characterized by the fact that some of the steps overlap in time.

7. Reloading apparatus for rearrangement of products stacked on transport elements and replacement of transport elements, especially for execution of one of the aforementioned methods, with

a) a rear wall (R) with a lower and an upper end, in which the rear wall (R) runs in a direction (Z) and the direction (Z) is essentially vertically aligned in an initial position (A) and

b) a foot element (F) adjacent to the lower end of rear wall (R) to accommodate a product stack (S) arranged on a first transport element (T1), wherein the foot element (F) can be pivoted around a pivot axis (30) running parallel to rear wall (R) and/or can be displaced in the direction (Z) and

c) with a fastening cover (D) arranged on the upper end of the rear wall (R), moveable in the (Z) direction and/or pivotable around an axis for clamping of the stack (S) in direction (Z) between fastening cover (D) and foot element (F) and

d) with at least two side clamping jaws (K) to clamp the stack from the right and left between clamping jaws (K).

8. Reloading apparatus according to Claim 7, characterized by the fact that the apparatus can be pivoted around a tilting axis (20) running parallel to rear wall (R) from the initial position (A) into a tilted position (B).

9. Reloading apparatus according to Claim 7 or 8, characterized by the fact that the rear wall (R) can be divided into at least two wall elements (R1, R2) moveable relative to one another.

10. Reloading apparatus according to one of Claims 7-9, characterized by the fact that the apparatus can be moved in a vertical direction from an initial position to a lift position (H).

11. Reloading apparatus according to one of Claims 7-10, characterized by the fact that the fastening cover (D) and/or the clamping jaws (K) have balancing elements (12), especially airbags or cushions for balancing of unevenness in the stack side surfaces or on the top of the stack.

12. Reloading apparatus according to one of Claims 7-11, characterized by the fact that the foot element (F) in the initial position (A), the tilted position (B), the lifting position (H) and/or in any position in between can be pivoted away from the stack (S) around axis (30) or can be moved in direction (Z).

13. Reloading apparatus according to one of Claims 7-12, characterized by the fact that
a) the lateral clamping jaws (K) can be individually pivoted to or away from the sides of the stack (S) around an axis (40) running essentially in direction (Z) and/or

b) that the lateral clamping jaws (K) can be moved toward or away from the sides of the stack (S) in a direction (X) perpendicular to direction (Z).

14. Reloading apparatus according to one of Claims 7-13, characterized by the fact that a vibrating element (L) is provided with which the stack can be placed in vibration preferably in the tilted position (B) for realignment of individual elements of the stack.

15. Reloading apparatus according to one of Claims 7-14, characterized by the fact that the tilted position (B) corresponds to a position rotated around axis (20) by 180° from the initial position (A).

16. Reloading apparatus according to one of Claims 7-15, characterized by the fact that drives for movements of the clamping jaws (K) and/or the foot element (F) and/or the apparatus as well as a control of these drives are provided.